Geo 04: Teacher Answer Sheet- Population Density of Australian States and Territories

1 Subject Area Geography
2 Suggested Level Years 8
3
4 Overview

This activity uses information from the Year Book Australia, 2009-10 (cat. no. 1301.0) to calculate and map population density for the states and territories of Australia. The advantages and disadvantages of displaying the data in this way are examined. A worksheet is provided for students.

5 Requirements

- Small sweets/lollies/sultanas and card/paper squares(optional)
- Map of Australian states and territories (see Attachment)

6 Instructions

Australia's **Estimated Resident Population** at December 2008 was 22,342,000 people (Australian Demographic Statistics, Dec.2010, cat.no.3101.0). Australia's population density at June 2010 was 2.9 persons per square kilometre (persons/km^2). Population density is much higher in the major cities with the central parts of Sydney and Melbourne having population densities between 7,000 and 8,400 persons per square kilometre.
Introduce the concept of population density with a number of small "lollies" or sultanas and a small square of plain paper or card. The card represents one square kilometre and each "lolly" one person. Density is altered by the addition of "lollies" to the paper/card square. Let the students guess how many "lollies" represent the population density of Australia.

7 Task One: Calculating Population Density

Population density is the number of persons per square kilometre. The formula for calculating density is shown below.

Population Density = Number of Persons ÷ Area of land.

It is expressed as persons per square kilometre (persons/km^2)

1. Calculate the density of population for Australian states and territories correct to one decimal place and insert these into Table 1.
   Students use the formula above to calculate the population density for Australian States and Territories (correct to one decimal place) and complete Table 1. Correct answers are provided below.

TABLE 1: POPULATION BY STATE AND TERRITORY, 30TH JUNE 2008			
State/Territory	**Population**	**Estimated Area (km^2)**	**Population Density Persons/km^2**
Australian Capital Territory	346,000	2,358	*146.7*
New South Wales	6,984,000	800,642	*8.7*
Northern Territory	220,000	1,349,129	*0.2*
Queensland	4,294,000	1,730,648	*2.5*

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South Australia	1,603,000	983,482	*1.6*
Tasmania	498,000	68,401	*7.3*
Victoria	5,314,000	227,416	*23.4*
Western Australia	2,171,000	2,529,875	*0.9*
Australia[(a)]	**21,432,000**	**7,692,024**	***2.8***

Source: Year Book Australia, 2009-10, Tables 1.1 and 7.3 (cat. No. 1301.0)

[(a)] Includes Other Territories. Other Territories comprise Jervis Bay Territory, Christmas Island and the Cocos(Keeling) Islands.

Task Two: Representing Population Density on a Map

2. Create a map to show the population density of Australian states and territories on Figure 1. Your map should use shades of red, darker for areas of higher density and lighter shades for low density.
Remember to check that all BOLTSS (border, orientation, legend, title, scale and source) are present.

Students create a map of the population density of Australian states and territories using shading grading from dark (more densely populated) to light (less densely populated) in tones of red using the data from Table 1. A map of Australia is provided on the worksheet.
Students should be reminded to check that BOLTSS (border, orientation, legend, title, scale and source) are present on their map.

Choose 5 ranges or categories to display the data or use those provided by your teacher.

Students may either:
- *Identify their own categories for the data(preferred) or*
- *Use the categories suggested below.*
  - *100+ people per square kilometre*
  - *20 - 99 people per square kilometre*
  - *5 -19 people per square kilometre*
  - *1 -4 people per square kilometre*
  - *< 1 people per square kilometre what*

3. How could the map change if different ranges are chosen for the data?
Discuss with students how the map will change when different categories are chosen for the data.

4. Identify one advantage and one disadvantage of representing the information about the population of Australian states and territories in this way.

***Advantage**: It is easy to make comparisons between states. The boundaries of the areas are clearly defined.*

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***Disadvantage**: It does not provide an accurate picture, because population is usually concentrated in some parts of the state and dispersed in other parts. The map will look different according to the categories chosen for the data.*

8 Glossary

Density of Population
is the number of persons per square kilometre.
Distribution of Population
is the spread or arrangement of something over an area.

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12 References

(Note: Links to ABS publications are to the most recent release. Previous releases can be accessed by selecting the 'Past & Future Releases' tab.)
Year Book Australia, 2009-10 (cat. no. 1301.0)

13 Feedback

To provide any feedback regarding this activity, please contact ABS Education Services on 1800 623 273 or email education@abs.gov.au.